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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,471	07/14/2004	Changsung Kim	ALIP0046USA	4470
27765 7590 08/23/2007 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER BLOOM, NATHAN J	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 08/23/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/710,471	KIM ET AL.	
	Examiner	Art Unit	
	Nathan Bloom	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/14/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/14/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Drawings***

1. The drawings (Figures 9-11) are objected to because of the unlabeled rectangular box(es) shown in the drawings should be provided with descriptive text labels. As per CFR 1.84(o) examiner can request legends. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 7, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by List et. al. (“Adaptive Block Filtering”).

Instant claim 1: A video processing method for processing blocking artifacts between two blocks within a video picture, the video processing method comprising: [storing pixel values corresponding to the two blocks; and *[As per section II.C (Sample-Level Adaptivity of the Filter) a one-dimensional filter is applied at the block boundaries (at least 2 blocks necessary to form a block boundary), if conditions are met. Thus the storing and accessing of the desired pixel values is also taught since it is inherent to the filtering process that the desired pixel be accessed in order to perform the filtering process.]* comparing two boundary edge pixels adjacent to a boundary between the two blocks according to a first threshold to determine if the pixel values of the two boundary edge pixels should be adjusted, if a difference corresponding to the pixel values of the two boundary edge pixels meets a requirement of the first threshold, adjusting the pixel values of the two boundary edge pixels to decrease the difference. *[Section II (Boundary Analysis) discloses the boundary conditions such as the differencing of the boundary edge pixels and the comparison of these differences to a set of thresholds and upon meeting the requirements a filtering process is performed to reduce the difference between the boundary edge pixels.]*

Instant claim 2: The video processing method of claim 1, wherein the difference is a luminance difference or a chromatic difference. *[Section II.C 2nd paragraph.]*

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Instant claim 3: The video processing method of claim 1 further comprising:
comparing one pixel out of the two boundary edge pixels with an interior edge pixel adjacent to the one pixel according to a second threshold to determine if the pixel values of the two boundary edge pixels should be adjusted. [See section II.C and Fig. 2.]

Instant claim 7: The video processing method of claim 1 further comprising:
when a difference between two quantization parameters of the two blocks increases, increasing the first threshold; and when the difference between the two quantization parameters decreases, decreasing the first threshold. [See section II.C and Fig. 2. In particular see $Index_A$ and $Index_B$ that vary based on the quantization parameter (QP).]

Instant claim 10: The video processing method of claim 1 being a loop filtering method of a video encoding process or a video decoding process. [The Introduction (section I) teaches the advantages of using loop filtering method and the 1st paragraph of the Results (section IV) shows that the loop filtering method was implemented for the deblocking method.]

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11-13, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over List et. al. as applied to claims 1-3, 7, and 10 above.

Instant claims 11-13, 17, and 20 correspond to the system that performs the method of claims 1-3, 7, and 10. As per rejection of instant claims 1-3, 7, and 10 these methods have been disclosed. Furthermore, as can be seen by the Results/Conclusion section in List this method has been implemented and thus it was known to one of ordinary skill in the art how to create a system to perform the deblocking method (using PC or other computing device in combination with software). Claim 20 includes the limitation that the system is a video encoder or decoder and as per the 2nd paragraph of List the loop filter operates within the encoding loop (as performed by the encoder) and thus this limitation has been taught and was admitted to (by List) as common knowledge to one of ordinary skill in the art.

5. Claims 4-6 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over List et. al. as applied to claims 1-3 above, and further in view of Kwon (US 2005/0244063).

Instant claim 4: The video processing method of claim 3 further comprising:
comparing an adjusted pixel out of the two boundary edge pixels with an interior edge pixel adjacent to the adjusted pixel according to a third threshold to determine if the pixel value of the interior edge pixel should be adjusted. *[List teaches in section II.C and Fig. 2 the differencing of interior pixels with the non-adjusted boundary pixels and then comparing these to a third*

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threshold, but does not teach the comparison of the interior pixels to the adjusted (already filtered) boundary pixels. However, Kwon teaches the differencing of the interior pixel to the adjusted boundary pixel in paragraphs 0099-0102 and further teaches the comparison of this to a threshold. Furthermore, Kwon teaches a method of adaptive deblocking filtering very similar to that of List with only some variations in the thresholding and adjustment of the pixels. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of List with Kwon to further attenuate discontinuities between adjacent interior pixels.]

Instant claim 5: The video processing method of claim 4, wherein the third threshold is equal to the first threshold. *[Kwon teaches ACTIVITY threshold in paragraphs 0099-0102, which are the same and used as both a 1st and 3rd threshold.]*

Instant claim 6: The video processing method of claim 4, wherein an adjustment amount of the pixel value of the interior edge pixel is one half of an adjustment amount of the pixel value of the adjusted boundary edge pixel. *[Kwon teaches in paragraphs 0077-0081 and 0097 the use of $\frac{1}{2}$ the weights as the first adjustment amount where the weights are WT1 and WT2 and are used to calculated delta1 and delta2 of equations 2-4.]*

Instant claims 14-16 correspond to the system that performs the method of claims 4-6. As per rejection of instant claims 4-6 these methods have been disclosed. Furthermore, as can be seen by the Results/Conclusion section in List a similar deblocking method has been implemented and

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thus it was known to one of ordinary skill in the art how to create a system to perform the deblocking method (using PC or other computing device in combination with software).

6. Claims 8-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over List et. al. as applied to claims 1 and 7 above, and further in view of Derviaux et. al. (“A Postprocessing Technique For Block Effect Elimination Using A Perceptual Distortion Measure”).

Instant claim 8: The video processing method of claim 1 further comprising:

when a just noticeable difference defined according to Weber's Law increases, increasing the first threshold; and when the just noticeable difference decreases, decreasing the first threshold.

[As per rejection of instant claims 1 and 7 List teaches a deblocking method of differencing and comparing of the values to a threshold. Furthermore, List teaches varying the threshold based on a quantization parameter (size of the artifacts) and in section II.C first paragraph teaches that it is desired to keep true edges and to reduce visibility (perceived visibility) of artificial edges. Derviaux teaches a processing technique to reduce the blocking effect wherein the perceived visibility (section 2) is taken into account using Weber's Law (2nd paragraphs of section 2). Thus Weber's law was a known method of measuring the level of blockiness and visibility thereof. Given that List and Derviaux both teach the measurement and correction of edge blocks it would have been obvious to one of ordinary skill in the art to use the known measurement techniques (such as Weber's Law) to more accurately measure the perceived

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blockiness and then appropriately adjusting thresholds to such that artificial edges are removed.]

Instant claim 9: The video processing method of claim 1, wherein the first threshold is a just noticeable difference defined according to Weber's Law. *[As per rejection of instant claim 8 it was known to one of ordinary in the art to adjust or define the thresholds based on a measure of visibility such as is defined by Weber's Law.]*

Instant claims 18-19 correspond to the system that performs the method of claims 8-9. As per rejection of instant claims 8-9 these methods have been disclosed. Furthermore, as can be seen by the Results/Conclusion section in List a similar deblocking method has been implemented and thus it was known to one of ordinary skill in the art how to create a system to perform the deblocking method (using PC or other computing device in combination with software).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Chou (US 2003/0035586) – Figure 3, teaches the benefit of attenuating discontinuities between adjacent pixels (applicable to claim 4).

Contact Information

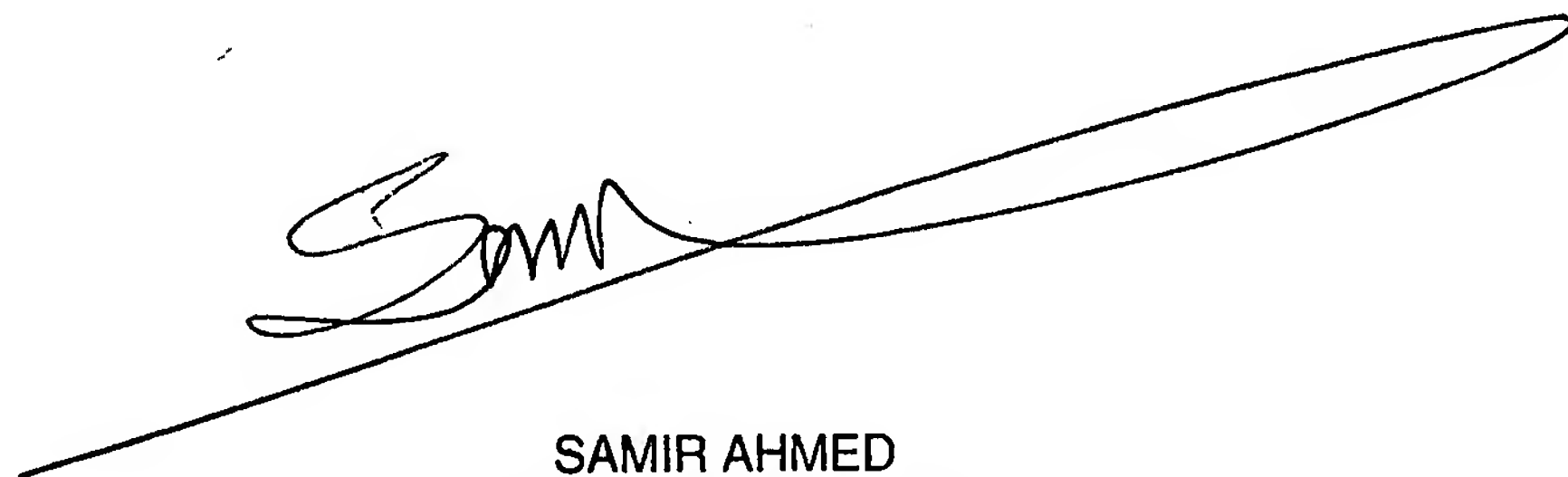
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Bloom whose telephone number is 571-272-9321. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed, can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nathan Bloom

A handwritten signature in black ink, appearing to read 'Samir', is written over a long, thin, slightly curved horizontal line that spans across the signature area.

SAMIR AHMED
PRIMARY EXAMINER